

SELF-SUSTAINABILITY FOR THE MANAGEMENT OF WATER CYCLES AT THE LOCAL LEVEL

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Keywords: water cycle planning, collaborative planning, self-sustainable local development, service waters, non-conventional technologies, selected archive of best practices

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Summary

Water planning, within the context of overall landscape planning, should not be defined only within the Plan's strategy, but also via the identification and definition of specific sectoral issues such as a new approach to protection of the surfaces associated with water utilisation; collection and non-conventional treatment of wastewater; the possibilities for water conservation during distribution and use; protection and valuation of water bodies and related territories, taking account of landscape characteristics and the growing awareness of the local population. All the above are being translated into concrete action in the illustrated case studies: Savonarola Neighborhood, "Caduti della Resistenza-ATER" District, Padua, and RIGENA Programme, Selvazzano D., Italy.

1. Introduction

1.1. Scientific Background

The first aim of this paper is to explain our concept of sustainability. Since the concept of sustainable development has been worked out first of all in the Brundtland report and recently in the U.N. Conference on Human Settlements (Habitat II) and disseminated through international documents and conventions, the emphasis on its local basis and the need for self-community based planning have grown more and more. In fact the attainment of sustainability is reliant on the shift from short to long-run perspective in policy making and on changing attitudes of socio-economic actors. The roots of the new outlook on development and the principles for the construction of sustainable settlements that go along with it can be traced back to the Stockholm Conference on the urban environment, where the idea was originally introduced. More progress was made during the Habitat I Conference in Vancouver, the Earth Summit of Rio de Janeiro and during the last conference of the great cycle, Habitat II in Istanbul. Our work takes a sustainable approach to urban and regional planning, focusing on environmentally sound, locally manageable solutions.

Sustainable development, therefore, is a general program of action for global reform, a program that has yet to be fully defined: however there is a growing consensus that it must be accomplished at the local level. It is what we call the need for a SSLD. In brief, the concept of local development is based on the rediscovery of the local patrimony; the concept of self-sustainability is based on the assumption that only a new, mutually responsive relationship between residents/producers and territory can provide long-lasting equilibrium between human settlements and the environment. Self-sustaining projects integrate new ideas and technology with knowledge of environmental history.

The index useable for the evaluation of this process is the SSLDI. The Italian Territorial School led by the Italian planner, Alberto Magnaghi, developed this methodology.

Briefly, the principles lying beneath the SSLD vision are:

1. Planning is still an essential instrument in developing sustainable human settlements in an urbanising world; the output of territorial quality is an essential indicator of sustainability. The most direct way of tackling the transition towards sustainability is of proposing long-term strategies: that are very difficult to implement and come into collision with the culture of immediacy of our contemporary society. Therefore

- in planning we can adopt another short-term attitude based on paths that might be called “leapfrog strategies” or “best practices strategy”;
2. Confirmation of the importance of those modifications introduced into the discipline of human settlements planning from the group of sciences that go under the name of “sciences of complexity” (i.e. new thermodynamics, epistemology, ecology, landscape ecology, ecology of settlements, ecological economics, social partnership sociology, bioarchitecture and bioplanning or environmental planning or environmentally sound land-use planning);
 3. Redefinition of the figure of the planner (urban and regional planner) and of the forms of planning production is crucial. It is necessary to retrieve those approaches to sustainability that underline the importance of the “self” and of “local”, accompanied by the principle of active subsidiarity;
 4. Returning to the original referents (stakeholders) of sustainable development is essential, that is, local societies (with which new partnerships need to be built that also include the intended planners and traditional plan);
 5. Inclusion of a set of indicators for sustainable development that satisfies basic needs, but also includes efficacy indicators that balance cultural sufficiency with technical efficiency and the perceptive and aesthetic indicators that lead to a new biogenic aesthetic. In this way, a certain tradition of the sustainability indicators based on the assessment of the environmental impact only can be improved;
 6. Recovery of a world dimension of sustainable development must indeed include the necessities, the voices, and the projects of the Southern Hemisphere (which means both urban projects in the North that take into consideration the relapses in the South in terms of globalization of the development effects, as well as international funds for developing countries of the South, based above all on the growth of endogenous capacity and on institutional building).

1.2. Framework and Methodology

The roots of the present work can be traced back to the activities of National Network Research (eight University Centers in various Italian Faculties) named STI. The aims of our research are: a) first of all to continue the conceptual level and the methodologies developed by the STI; b) second, to open a new path of research through the establishment of Best Practices Archives (that include the Savonarola and RIGENA case studies), whose practices were selected using the Self-sustainability Criteria set. These Archives will use the existing LABSLA database. Since 1995 the Laboratory's research has concentrated on the integrated management of the water cycle in settlements, through the use of ecologically sound technologies (the reuse, recycling, restoration and purification of water within a city or settlements).

The LABSLA is a research-oriented branch of the DAEEST at the IUAV in Venice, Italy. Initiated in 1994, the Laboratory is coordinated by Erich Roberto Trevisiol and brings together research assistants, recent graduates, thesis candidates, and others to participate in discussion groups and to carry out team projects. The Laboratory conducts research for Italian Research Institutions (such as CNR and MURST), hosts international research conferences and panel discussions, and organises training activities and workshops for graduates. The Laboratory is also an active participant in external regional research efforts (such as ANAB and INBAR; the Scientific Committee of

Legambiente) and provides scientific and technical consulting services for city and regional environmental groups. The LABSLA has produced several scientific publications officially submitted to national and international conferences, papers, special collections of publications, and a web site linked with the other National Network Research Unities.

2. Findings of the Research

2.1. Main findings of the LABSLA research

The LABSLA research increasingly focused upon the following fundamental issues that arose:

As regards content

- Locally based reconfiguration of urban sprawl must be characterised by a cultural dimension within the built-landscape ecology and local sustainable development themes.
- New municipalism, as an opportunity for re-establishing society, must confront the awkward issue of citizen participation. Few clear conclusions can be drawn from our research findings. The main one is that, as this new century opens, co-planning (or interactive or collaborative planning) activities need to return to their original inspiration, in the 1970s. This means establish a “locally based virtuous circle for planning” connecting planners, residents and administrators. The Venice branch has named this circuit, in the case of the water cycle, “federalism of water and waste water”. Only at a general level is attention given to the results of the various local referenda on urban planning issues (most recently in Padua in November 2000 regarding urban transportation), which never exceeded a third of eligible voter representation.

As regards methodology

- Representation methodologies adopted, albeit via experimentation with the use of various consolidated techniques for graphical representation, were tied to a language which fulfilled reproducibility, replicability, ease of understanding, immediate communicability of criteria along with procedures adopted by the local administrations.

As regards revision of the planning discipline

- Revision of the plans, not only of their analytical framework, is now no longer just a theoretical problem but an operational one, too. (One example of this would be when considering the ecological content of Padua's Town Master Plan amendments or Construction Calls for tender—private residential as well as public—characterised by rules based on bio-architecture and ecological urban planning. Another would be when considering theme-based, evaluative and concerted planning as seen in the so-called “new town planning instruments” of the Neighbourhood Contracts (in Italian “Contratti di Quartiere”) exemplified by Savonarola Contract.)

2.2. Methodology: Selection Process

We briefly illustrate below the criteria and selection methodology adopted for the Case Studies, and further developed at LABSLA. Collection and classification of the practices was carried out using the following instruments:

1. LABSLA database of cases. It contains over 100 cases in Italy and other parts of Europe;
2. Research on the Internet amongst the main sites concerning ecologically compatible planning and the water cycle;
3. Identification charts for a limited number of cases compiled with information collected on-site and data collected from specialist publications belonging to LABSLA. A novelty is the fact that principal data for compilation of the charts was provided and inserted by the same *actors* as those involved in the process of developing the cases. This constitutes, in practice, a *guided self-evaluation*, based on a thematic grid supplied by LABSLA. The charts were integrated with archive material of individual planners and the results of internet-based searches.
4. Evaluation grids (matrices) on sustainable use of the water resource cycle (with technological, landscape, socio-economic, management indicators), derived from an evaluation matrix based on SIC which were developed within the Best Practices of Habitat II and subsequently (1996-2000) by the Best Practices Data Base.

2.3. Methodology: Evaluation via the Best Practices method

Evaluation instruments used are based upon selection methodologies for best or good practices (B.P.) further refined during the world Conference on Human Settlements Habitat II, in Istanbul in 1996. The evaluation structure for the B.P. was chosen by virtue of its ability to allow simultaneous evaluation of actions, initiatives and projects, equipped with a specific feasibility plan, which demonstrate the undertakings of a large spectrum of actors in the civil society to implement durable, concrete and transferable solutions to their settlement problems.

Evaluation phases are constituted by:

Evaluation 1. This is the first filter in which one considers the number of actors in a specific project. The project passes this filter if the constituent actions mobilise at least two out of a total of eight possible actors.

Evaluation 2. The second filter checks whether the project fits under the five B.P. categories. The project passes this filter if it belongs to at least one area.

Evaluation 3. The third and final filter determines the correspondence between the self-selected qualifying elements (the elements are indicated by the promoter while correspondence to SIC is determined by a team of experts) and the eight SIC. The scheme used by Habitat was modified by the addition to the seven original criteria of the criterion of built landscape and the identity referring to evaluation aspects for the beauty of the city. The project passes this filter, and can be defined as a

Best Practice, if its qualifying elements belong to three or more sustainable impact criteria and if the number of qualifying elements belonging to each of the three or more criteria is *equal or superior to 50%* of the total number of elements.

Good Practice is identified when: a) the project passes the first two filters; b) the project, which has qualifying elements belonging to three or more criteria established by the third filter, has *less than 50%* of the total number of elements but is still exemplary in the opinion of the Research Team.

2.4. Methodology: Public Consultation and Involvement of Local Communities.

User participation in the project cycle has been divided between two phases: *a)* participation in so-called “awareness-raising as regards water resources”; *b)* participation in the definition of the project components. As regards quantity, types of activity, instruments used and the evaluation of results, please refer to the specific sections of the next Savonarola chapter.

2.5. Ways of Rewarding Representation.

A crucial problem is methods, instruments and modes of rewarding (repaying) representation (plans, maps). Representation as “incremental communicative knowledge” has been delegated outside the Venice branch to: a) Construction of a module of the LABSLA website dedicated to the MURST research: briefly, a multimedia exposition of the projects (and their selection methodology) which were examined; b) Production of materials measured by the planning dimension referring to the exemplary case studies selected: “Contratto di Quartiere” Savonarola. Various representations of the project elements are compared with the specificity of the interests displayed in the area (ranging from innovative representations to include in the administrative practice, to planning scenarios reviewed with users).

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Visit: <http://www.eolss.net/Eolss-sampleAllChapter.aspx>**

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Web sites list:

LABSLA

<http://www.iuav.it/labsla/labsla.html>

(Chapter Novità , NEWS-ATLANTE)

PADOVANET

<http://www.padovanet.it/comune/edilres/contratt/pagine/index.html>

(for the Savonarola Contract English summary)

<http://www.padovanet.it/comune/edilres/contratt/pagine/11ciclo.htm>

(for the Water Cycle Project and Tables)

Biographical Sketch

Erich R. Trevisiol, Architect and Environmental Planner, has been a researcher at the Department of Economic and Social Regional Analysis (DAEST, now renominated DP, Planning Department) at the University of Architecture in Venice, Italy since 1976. Since 1989 he has taught Environmental Planning at the Post-Graduate Program in Urban and Regional Planning for Developing Countries (PVS). He has worked on projects involving urban environmental management in countries in Europe and in the developing world. He has conducted extensive research in the field of environmental planning, specifically in the fields of landscape design, protected areas, and water resources. He is the Coordinator of the Laboratory for the Self Sustainable Development-Urban Waters (www.iuav.it/labsla/labsla.html).